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## **MRnet Strategic Plan – 2010 to 2015**

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# **Executive Summary**

The MRnet Strategic Plan is important, not only in setting direction for the consortium over the next five years, but also in informing governments, researchers, educators and others on Manitoba's high-speed research and education networking needs. The long term viability of CANARIE is not a given beyond 2012 and the support of MRnet in the future may have to come from a number of alternate sources.

MRnet has been successful in fulfilling its mandate, perhaps more so than in some other provinces. This is due to the hard work and support of many people in the member institutions, CANARIE and the Manitoba government – strengths within the organization that, in cooperation with these partners, provide a foundation for achieving continued excellence in high-speed research and education networking for the benefit of the province's vibrant research and education community. Communicating this success is an important goal moving forward.

## **Background**

### **MRnet Defined**

The Manitoba Regional Advanced Network (MRnet) was founded in 1995 as an incorporated not-for-profit consortium of organizations dedicated to the development and advancement of research and education (R&E) based high-speed networking and network applications. MRnet receives in-kind contributions and annual fees from its members as well as funding provided by the Canadian Network for the Advancement of Research, Industry and Education (CANARIE, also a not-for-profit corporation supported by its members, project partners, and Industry Canada) and from the Province of Manitoba. MRnet offers a reliable, high-speed communications network to its member institutions with no costs associated with the amount of traffic generated by an institution.

MRnet's ([www.mrnet.mb.ca](http://www.mrnet.mb.ca)) role and mandate is the advancement of high speed research and education networking infrastructure and applications in Manitoba. It is funded by the arm of CANARIE ([www.canarie.ca](http://www.canarie.ca)) responsible for supporting national and regional high-speed R&E networking. CANARIE support of public good applications such as access, e-health, e-learning, etc. come from the other arm of CANARIE which is currently dormant due to lack of funding. It is important to understand and make this distinction.

### **Current State**

MRnet functions in Winnipeg using Bell provided user-managed dark fibre connections. In Brandon the MRnet connection uses a service from Manitoba Hydro between Winnipeg and Brandon, and a university/city-owned dark fiber build within the City of Brandon. MRnet received support from CANARIE's initiative with

\$850,000 in funding for the Winnipeg and Brandon network upgrades. These activities are oriented toward assisting key sectors of the economy to develop critical advanced R&E networking applications and associated infrastructure. Future enhancements will move to using User Controlled Light Paths (UCLP) over customer-managed fibre. MRnet has developed a Statement of Work which has been submitted to and approved by CANARIE identifying how MRnet will use Phase 4 funding. This includes links to Canadian Mennonite University, Assiniboine Community College and University College of the North.

Over the previous plan period (2006-2010), significant advances were made in two key areas of strategic commitments, they were: financial sustainability and access.

## **Issues and Challenges**

The speed of the CANARIE network going east, west and south from Winnipeg is 1 gb/sec. The speed of the CANARIE network in BC, Alberta, Ontario and Quebec is 10 gb/sec over multiple wavelengths on the ROADM sections of the network. Winnipeg is therefore a choke point in the national network and this will need to be addressed as part of future CANARIE network upgrades. This must be part of the entire discussion regarding the future of CANARIE post March 2012. The various constituents across Canada must raise awareness regarding the need for CANARIE to exist and operate the national network with appropriate priorities as we move into the second decade of the 21st century. Furthermore, it will be important to develop other international options for connecting the MRnet network outside of Manitoba should CANARIE cease to exist.

While there have been gains in the areas of sustainability and access in MRnet, the increased use of the network for mission critical activities for some members has brought forward the challenge of higher service level expectations and potentially higher management costs. Currently, the network management remains at a “best effort” level of support.

In developing the strategic plan, MRnet is doing so within the context of CANARIE's Acceptable Use Policy (see Appendix “B”).

## **MRnet Mandate**

MRnet has been successful in fulfilling its mandate. Looking forward, the MRnet consortium is committed to keeping its focus, maintaining its momentum of development and growth, and working towards a common vision and goals.

### **MRnet exists:**

- To be the Manitoba Optical Regional Advanced Network (ORAN), in partnership with CANARIE.
- To leverage available funding in order to meet CANARIE's national mandate in Manitoba.

- To facilitate and promote high-speed research and education networks.
- To provide a province-wide R&E high-speed network in Manitoba that is connected to the national network which, in turn, is connected to the global research and education network.
- To provide an institution-to-institution research and education network.

In light of the existing environment and the evolving state of the consortium, the current MRnet Mission Statement is as follows;

**MRnet's mission is:**

1. To enhance our members' expertise in Advanced Networking Technologies and Applications through the use of a Manitoba high-speed research and education network.
2. To stimulate research and educational use of high-speed network services and related information technology within Manitoba through our membership.
3. To stimulate cooperation in high-speed networking research and development among our members including: Industry, Education, and all three levels of Government.

## **MRnet Vision**

To continue to be a recognized national leader in providing a sustainable, advanced high-speed network to support research and education among industry, education, and governments through the plan period.

MRnet will accomplish this by:

- Providing an active, self-sustaining, pervasive, reliable, high-speed network infrastructure connecting all eligible member institutions for the purpose of research, development, and educational activity.
- Ensuring sustainability of the current infrastructure and evolving into providing greater provincial coverage (across Manitoba) as well as ensuring collaboration and sharing via the research and education network.
- Remaining technologically innovative in respect to how researchers collaborate and demonstrating future technologies (i.e. as a research tool).
- Providing a platform for a growing number of innovative applications to facilitate significant participation by Manitoba on the national Research & Development stage.
- Building capacity for research originating in Manitoba, increasing utilization by all educational institutions in Manitoba.

# **Situational Assessment**

Factors in MRnet’s environment influence its ability to achieve the mission and vision that define and create its future. Being effective at managing these “factors” will translate into being successful at achieving MRnet’s desired (future) state.

## **Critical Success Factors**

The critical success factors are the elements that need to be in place and/or the events that must occur for MRnet to be successful in achieving its goals and objectives. These include:

### **i. Ongoing funding**

- R&E networks cannot be self sustaining based on contributions by researchers alone.
- Support from government and industry will always be required for sustainability.

### **ii. Commitment**

- Institutional commitment (by executives, senior researchers, and senior administrators in research and education) demonstrated through funding, endorsement of MRnet, recognition, increased funding, and provision of a quality network included in their strategic plans.
- A continued, engaged, and active core membership including a designated champion for the network.
- Strong provincial government commitments exemplified through funding and recognition of MRnet as a key component of the overall provincial broadband strategy (MBNet).
- Strong support from CANARIE, including connection, funding, and endorsement of MRnet as the regional network carrier.
- A collaborative attitude.

### **iii. Relevance**

- Demonstrated use of the network, emphasizing the importance of the network to provincial research and education - a method by which to report accomplishments (ie. Annual Report).
- A communicated value proposition expressed in tangible and measurable terms (ie. Briefing notes).

### **iv. Accountability**

- A governance board with policies and rules in place.
- Focus on the mandate, mission, and vision.

- Strategic and operational plans in place.
- Good, effective communication among members and to supporters.
- Accountability to researchers (users) and funding bodies.
- A reporting framework or mechanism.

**v. Technical Expertise**

- R&E networks cannot rely on technical support solely from the vendors and network carriers since the type of usage in such networks typically pushes the boundaries of the technology.
- Skills are required which are not normally found in the support structures available from commercial suppliers. These skills need to be provided by and from within the member organizations.
- As the network becomes more mission critical to some members, skills to operate the network will become more important.

**vi. Cost**

- MRnet members are responsible for local infrastructure and support.
- Financial and administrative management is also provided as an in-kind contribution. This allows membership fees to be kept at a low level.

In addition to these critical success factors, there are, as with any organization, a number of strengths, weaknesses, opportunities and threats that affect MRnet's ability to fulfill its mission. See Appendix "C" for these details.

## **Going Forward – The Strategic Commitments**

A series of goals and related strategic commitments have been developed in order to focus MRnet's efforts towards achieving the stated mission and vision. The following strategic commitments are the key to ensuring MRnet's sustainability. The goals and their underlying commitments are ranked in order of priority and are organized into three broad themes: *Financial Sustainability, Access, and Governance and Support for Research.*

### ***A. Financial Sustainability***

**Goal** - A sustainable funding model for MRnet.

Strategies:

- i. Continued financial sustainability through a combination of government contributions for initial capital expenses, and membership fees, supplier partnerships, and other sources for the on-going operational costs.

- ii. Provide a fast, reliable, scalable, and economically-viable high-speed research and education (R&E) network.
- iii. Raise awareness and increase recognition of research network benefits to potential partners through more aggressive lobbying and marketing of the network's value.

## **B. Access**

**Goal** - Universal, ubiquitous and affordable access to high-speed research and education networks for qualifying organizations throughout Manitoba.

*Strategies:*

- i. To complete improving MRnet's connectivity for R&E to rural and remote sites.
- ii. To encourage and publicize MRnet-controlled state-of-the-art high-speed R&E networking in Manitoba.
- iii. To increase MRnet membership to qualifying members within MRnet's mandate.

## **C. Governance and Support of Research**

**Goal** - A governance structure that reflects the research interests and needs of members and allows for efficient operation of MRnet in support of research in Manitoba.

*Strategies for Governance:*

- i. Regularly review and enhance governance models for MRnet.
- ii. Proactively lobby government, industry, and academia for support of CANARIE and other high-speed R&E network initiatives.

*Strategies for Support of Research:*

- i. Create and publicize greater recognition of the utility of R&E networks among researchers, government, and industry.
- ii. Conduct annually and publicize an assessment of anticipated needs in advanced R&E networking for research institutions, and of emerging technologies in high-speed R&E networking.

- iii. Maintain and publicize an inventory list of past, current and potential projects in Manitoba using high-speed R&E networks through an annual report
- iv. Recognize and honour excellence in advanced R&E networking that takes advantage of the MRnet network through testimonials tied to an annual report.

## **Achieving 2015**

This 2010 – 2015 Strategic Plan will not only provide direction to MRnet in setting out its priorities and activities for the next five years, it will serve also as a means of framing the Manitoba research and education network, its successes, its challenges and its directions for the future.

This is important since the sustainability of this important Manitoba resource will depend on recognition in governments and in the private sector of the utility of a Manitoba R&E network and its importance in fostering economic growth and social benefits.

The next step in this journey will be the development of a needs assessment and tactical plan, defining the activities, priorities and a budget for MRnet that is in keeping with the stated goals and commitments. This will be done by a working group of the MRnet Board of Directors and is intended to complement this strategic plan.

## **Areas of Focus**

With the above as a backdrop and the attached SWOT framing current reality, MRnet has some key areas to focus on in the near term to further the goals of this plan. They include:

### **i. Improving Communications**

- Commence issuing an annual report starting in 2010.
- Surveying researchers to better understand future needs.
- Enhancing the MRnet Website as an information repository.
- Create linkages to educators to better understand needs
- Hire a marketing company to produce professional information tools.
- Commence formal tracking of accomplishments
- Acquire and utilize testimonials for various uses.
- Commence publicizing announcements and events

### **ii. Network Operations and Reporting**

- Offer SLA options at a price for those members who want them.
  - Potential offering from Partners
- Commence formal tracking and reporting on the network
- Provide service offerings on an a la carte basis

### **iii. Establishing a Link to the US Border**

- MB Hydro Telecom may present an opportunity

### **iv. Providing More Redundancy**

- MB Hydro Telecom may present an opportunity

## **Call to Action**

There are several key short term action items that are crucial to MRnet's success within the next 2 years in particular. Failure to act could have a significant negative impact on MRnet within the plan period and as early as 2011. Some key actions that should be expanded upon and tactically implemented include:

### **i. Communicating Effectively**

- Issue an Annual Report by Q1, 2010
  - Should include testimonials
  - Look at BC's or Cybera as a model
- Commence reporting on some key operational metrics monthly.
- Enhance website to be more informative and current.
- Survey researchers & grad students regarding future uses of the network by end of Q1, 2010.
- Develop a briefing document and presentation on MRnet to educate and inform various audiences. (Research VP's, GoM, etc)
- Hold a subgroup meeting with MBNet to discuss network peering and other collaborative activities by no later than January 31, 2010.
- Hold a joint briefing with MBNet to update the New Minister of Innovation, Energy and Mines by end of Q1, 2010.
- Establish an ongoing relationship with the Province and MBNet and hold at least 3 meetings a year to review and update on progress.
- Determine, select or vote for an MRnet Champion to articulate the strategic plan to all constituents by Q1, 2010.
- MRnet Board Executive to investigate engaging a Marketing Company to undertake many of the communication tasks above by December 31, 2009.

### **ii. Contingency Planning**

- Work with MB Hydro Telecom through 2010 to determine what needs to be true to ensure their connection to Drayton proceeds as planned.
- Commence developing plans should CANARIE cease operation in March of 2012.

## **APPENDIX “A”**

### **MRnet Strategic Planning Committee**

The following represents those MRnet Board members and invited advisors who volunteered their time and talents to the development of the MRnet Strategic Plan.

*MRnet Board Members:*

Greg Baylis	MERLIN
Denis Bernardin	Collège universitaire de Saint-Boniface
Al Dunthorne	Brandon University
Daryl Kines	University College of the North
Richard Nakoneczny	University of Winnipeg
Gerry Miller	University of Manitoba
Len Dacombe	TRLabs
Gabrielle Vigelius	Red River College
Cindy Hodges	Manitoba Innovation, Energy and Mines
Myron Semegen	Virtual Reality Centre, Manitoba Energy, Science and Technology

*Advisors:*

Ric Coy	Manitoba Innovation, Energy and Mines
Ron Dallmeier	Fiber.ca
Murray Matiowski	Manitoba Hydro
Gwendolyne Nyhof	
Mike Heise	MB TeleHealth

The MRnet Board consists of representatives from the following private and public sector research and development organizations who are members of MRnet.

*Current connected members:*

Brandon University  
Collège universitaire de Saint-Boniface  
Institute for Biodiagnostics / NRC  
Industrial Technology Centre  
MERLIN  
Red River College  
St. Boniface General Hospital Research Centre  
TRLabs  
Smart Park  
University College of the North  
University of Manitoba  
University of Winnipeg  
Winnipeg School Division One

*Members awaiting connection:*

Canadian Mennonite University  
Assiniboine Community College  
Health Canada - CSCHAH

*Future potential members:*

Brandon Regional Health Authority  
Brandon School Division

## **APPENDIX “B”**

### **CANARIE Acceptable Use Policy**

<http://www.canarie.ca/canet4/connected/aup.html>

1. Within the broader goal to advance the development of the information society in Canada, CA\*net 4 network services are provided to support research, education, advanced application development and usage by qualified Canadian research, education, and industry organizations. CA\*net 4 usage is warranted especially, but not exclusively, where it would not be practical or feasible to carry out research, development or educational activities on the existing commodity Internet infrastructure.
2. The CA\*net 4 Acceptable Use Policy (AUP) is an "institutional" AUP. Institutions which are given approval to access the CA\*net 4 network may send and receive traffic over the network as long as the traffic is originated from, and is destined to, other approved institutions.
3. CA\*net 4 approved institutions can only connect to CA\*net 4 through CANARIE approved GigaPOPs.
4. GigaPOP Operators are responsible to CANARIE for restricting access to and use of the CA\*net 4 network in accordance with the requirements specified in this document and as may be modified from time to time by CANARIE in consultation with the ORAN Advisory Committee.
5. Organizations wishing a connection to the CA\*net 4 network must be sponsored by a CANARIE member organization, an approved GigaPOP Operator, or by CANARIE.
6. CA\*net 4 GigaPOP Operators have the right to refuse any connections sponsored by a CANARIE member organization or by CANARIE. CANARIE, in consultation with the ORAN Advisory Committee, has the right to refuse any connections sponsored by a GigaPOP Operator.
7. All sponsored organizations must be registered on the CA\*net 4 Routing Registry in order for their routes to be accepted and advertised over the CA\*net 4 IP backbone.
8. In some cases route advertisement of an organization's network over the CA\*net 4 IP backbone may be limited in order to comply with stricter international network peer AUPs.
9. All organisations connected to CA\*net 4 through a CANARIE approved GigaPoP are required to maintain a separate connection to the commodity Internet.

## **APPENDIX “C”**

### **Strengths, Weaknesses, Opportunities and Threats (SWOT)**

This Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis describes MRnet's current position and the opportunities that exist for MRnet, together with the potential barriers that could obstruct the consortium's efforts toward bringing these opportunities to fruition. The roadmap that charts the transition from baseline to realization of opportunities and associated critical success factors is the strategic plan.

#### **Strengths**

The following are some of MRnet's advantages:

- Technical expertise in the membership.
- Reliable as dial tone, invisible, simple to use, high-performing network.
- Low cost of membership.
- Sustainable, financially sound model.
- One major urban area --- providing a geographic advantage.
- Commitment from existing members (e.g., as demonstrated by in-kind contributions).
- Common agreement on mission.
- CANARIE funding support.
- Vibrant SME industry to draw from.
- Growth in research in Manitoba.
- Network is used and fulfills a real need.
- Enjoys significant user support.
- Collaborative attitude built on strong interrelationships.
- Benefits from a long term continuous relationship with CANARIE.

#### **Weaknesses**

The following reflects on current MRnet limitations, whose improvements would likely help strengthen MRnet's ability to achieve its vision, goals and objectives:

- Insufficient marketing and lobbying.
- No general awareness of what the network is used for (invisible).
- No understanding of what the users do with the network.
- No communication between researchers / educators and network operators.
- Low visibility and awareness with Government, researchers and academia.
- Lack of a competitive telco environment in Manitoba.
- Cost of serving rural and remote locations.
- Lack of a reporting framework.
- Not a production or commercial level network.
- CANARIE network speeds in the Prairies are significantly lower than other parts of Canada.
- Outside Winnipeg, a lack of funding availability or pending end to funding.

- MRnet is a “volunteer” organization.

## **Opportunities**

The opportunities for MRnet lie primarily in areas that have, so far, remained “untapped”:

- Interface and integration with Provincial Broadband Strategy (MBNet).
- Fostering demand among Manitoba SMEs.
- Global Access – Europe, South America, Pac Rim – MultiGig.
- Lower-cost alternative to carriers (MB Hydro Telecom).
- Accommodation of increasing number of applications needing high-speed network (lightpaths, grid computing, Cloud computing, virtual reality, access federation, SaaS, HD Video, etc, etc).
- Connections to the north – eg. Nunavut.
- Health care in general and carrying health research traffic.
- Cost-sharing among regional networks.
- Cost-sharing among networks in Manitoba.
- Grow membership (MB TeleHealth).
- Developing new relationships with stakeholder groups.

## **Threats**

The following represents some potential obstacles/barriers that could impede MRnet’s ability to pursue opportunities that would help it meet its vision, goals, and objectives:

- An ongoing lack of awareness and insight of the nature of research by internal and external stakeholders.
- Other interests seeing MRnet as a means and medium for their priorities.
- Raising the operating price.
- Stakeholders, including governments, taking the research network for granted.
- Competitive agendas from other organizations; that is, competition for funds and resources.
- Funders’ perspectives on the value of MRnet to their respective organizations, based on invested assets.
- Inability to meet demand (i.e., scaling of network).
- Lack of succession planning and loss of expertise.
- CANARIE relationship is dependent on a single individual.
- The changing nature of research.
- A challenge in recruiting and retaining potential researchers.
- Lengthy, unproductive discussions with peer organizations.
- Unpredictable funding (Potential demise of CANARIE post 2012).
- Loss of CANARIE expertise over time.
- Lacking in certain local expertise.
- No dedicated operational staff.
- Consolidation of telecommunication carriers, resulting in little or no competition.

- Institutions not keeping up with technology.